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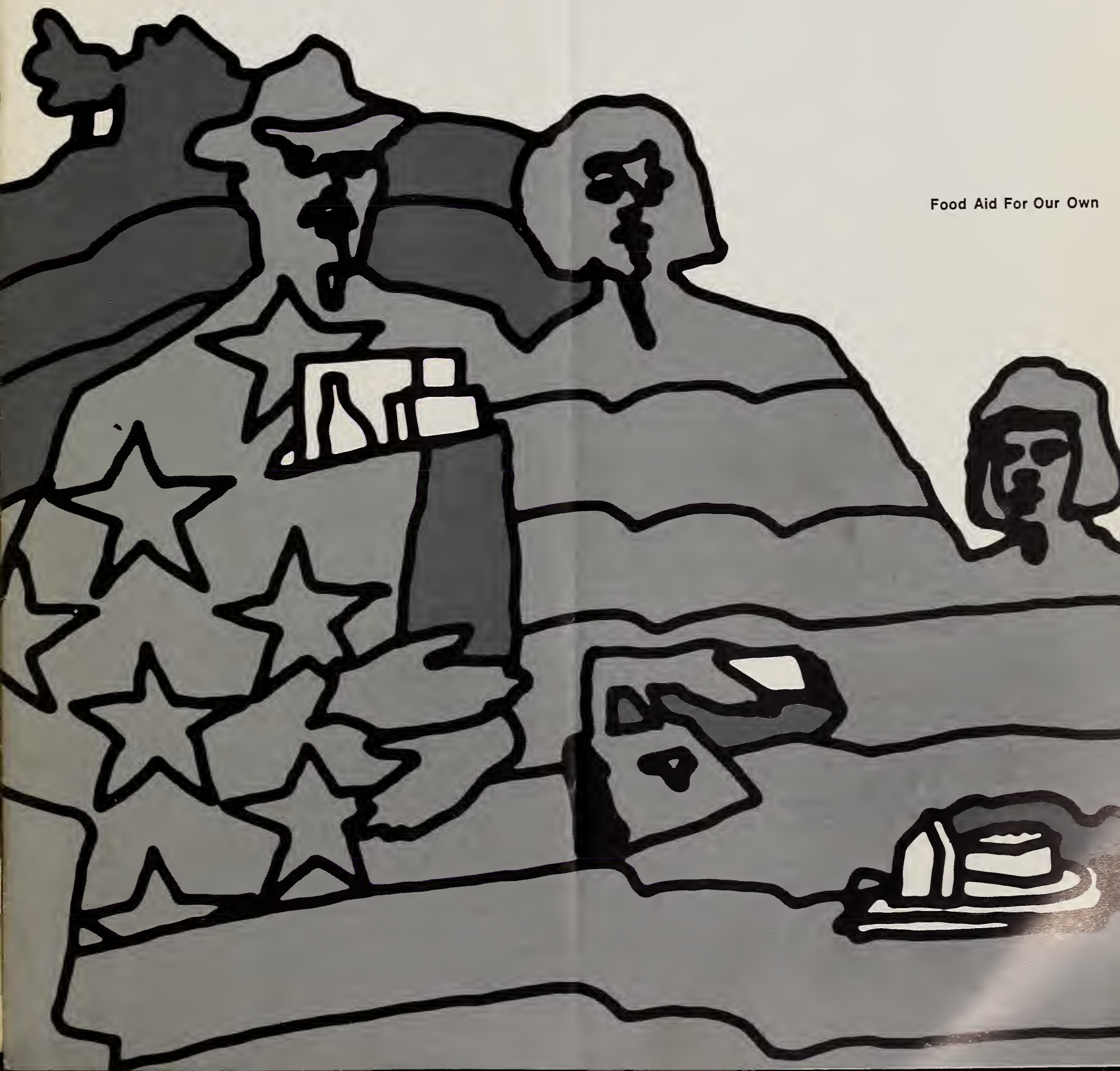
U.S. Department of Agriculture Economic Research Service



Food Aid For Our Own

THE AGRICULTURAL OUTLOOK

WHAT PRICE FARMING? Higher as each year comes along, of course. Yet the prospective rise in the high cost of farming may not be quite as steep this year as it was last.

Last year's bill. Farm production expenses in 1969 spiraled upward about $2.3 billion from 1968 to reach a total of $38.6 billion. Outlays for farm-produced items such as feed, seed, and livestock jumped 8.5 percent, while those for inputs and services of nonfarm origin rose almost 5 percent.

(Even so, farmers' gross receipts rose enough to boost net farm income by $1.2 billion —from $14.8 billion to about $16.0 billion.)

This year's bill. Costs of farming in 1970 may rise only about $1.5 billion from 1969—judging by early-in-the-year indications that there may be a general easing of inflationary forces. Here's a look, in hindsight and in foresight, at some of the major factors that figure in farming costs:

Higher price tags for farmers' production needs will in most cases account for more of this year's farm cost increases than stepped up use of inputs.

Higher wages, fewer workers. Demand for skilled farmworkers is strong, so some wage increases are likely this year. But not as much as last year's 10-percent hike. (Converting all types of farm wages to an hourly basis, the overall 1969 rate rose to $1.33 from $1.21 in 1968.)

This year, there's no legislation on the books to increase minimum wages. Also, the steady falloff in the number of farmworkers will probably continue. The hired farmwork force in '69 was down 5 percent from '68—and down about 40 percent from 1960.

More big machines, less manpower. Many farmers appear to be convinced they can hold down farm costs by replacing labor with large machines, well managed. Though total 1969 sales of machine units declined in volume and value, there was a 75-percent increase in unit sales of tractors with 100 horsepower or more.

Significant statistic: While wholesale prices of farm machinery in 1969 were 36 percent above 1957-59 prices, the comparable rise in farm wage rates was 74 percent.

About feed, seed, and fertilizer. Generally adequate supplies . . . fairly stable prices . . . except for minor increases in line with higher labor and transport costs. One exception to this broadbrush outlook, however, is a prospective rise in prices of some turf grasses and legumes because of a 3- to 4-percent reduction in supply.

Weedkilling on the rise. No slackening in the wider use of more specialized, higher priced herbicides (weedkillers) is in sight. Herbicide-treated soybean acreage will increase again this year, though acres of cotton treated may begin to level off.

Higher hog and cattle prices add up to higher replacement costs. Farmers will probably be paying out even more for replacement livestock this year than they did in 1969.

This winter, prices of feeder cattle and hogs averaged considerably higher than a year earlier. But later in the year, costs for feeder livestock—hogs as well as cattle—may not be running nearly as much above '69 levels as in recent months.

Increases in '70 are expected to be tempered by expanding meat output coupled with a possible slowdown in demand—especially in the second half of the year.

Lastly, but far from leastly, little relief from high interest rates can be expected—and probably no letup in tax hikes and increased costs for insurance.

* * *

HAPPY ANNIVERSARY to the 24 member countries of the Pan American Union, founded 80 years ago this April.

Land is Hawaii's most important inanimate wealth. Is there a way to gauge its future value? Some economists say maybe, and their reasons might apply elsewhere.

In the market for a used car? You can check the "bluebook" which lists the average market value for various ages and makes of autos.

No such luck with farmland, unless you're looking on the Island of Hawaii.

ERS economists in the Aloha State have just completed a study in which they developed methods of estimating the values per acre of land on the Island of Hawaii.

And, in a test of these methods on the prices of land sold between January of 1960 and April of 1967, the ERS estimates came within $100 of the actual prices per acre in over half the land sales.

The average price per acre for all sales investigated was $599.

To arrive at these estimates, the researchers first classified portions of land on the Island of Hawaii as *pasture, cane,* and *undeveloped.*

Then they worked out a separate equation for estimating the value per acre of each type of land as follows:

—Pastureland in the South Hilo District.

—Pastureland in the Kau, Puna, North Hilo, and Hamakua Districts.

—Caneland in Kau, Puna, South Hilo, North Hilo, Hamakua, and North Kahola.

—Caneland in North Hilo.

—Undeveloped land in Kau, Puna, and Hamakua.

Their findings revealed a logical pattern of price variations between different parcels of land.

For example, land price was positively related to characteristics that enhance land use, both farm and nonfarm.

And utilities, roads, and location of land with respect to population centers were generally the most important price determiners.

The price of pasture and undeveloped land, generally fell sharply as the size of parcel sold increased.

Often, the price level of pasture and undeveloped land was not justified by current earnings. Instead, it was kept up by demand for such land for investment, homesites, and part-time farming.

From January 1960 to April 1967—the period of the study—pastureland in the South Hilo District rose an average of 5.6 percent a year in price and in Kau, Puna, North Hilo and Hamakua, 3.6 percent.

Undeveloped land in Kau, Puna, and Hamakua rose 7.1 percent a year over the same period, while caneland in all districts remained fairly stable in price.

Some other highlights of the study:

Excluding subdivision sales, there were only 297 recorded sales of rural land of 10 or more acres on the Island of Hawaii from 1960 to 1967.

Most of these sales involved small parcels; 91 percent were under 100 acres; and 80 percent were below 50 acres in size.

From the North Kona District through the Puna District, most purchasers were not local residents but outsiders who bought land for long term investment and for subdivision.

On the other hand, in the area from the South Hilo District through the Hamakua District most rural land purchasers were local residents who bought the land primarily for agricultural use.

Few sales were recorded in the North and South Kohala Districts. However, land sales for residential and resort development in South Kohala are expected to increase. *(1)*

Peas Yield to Barley in Palouse Wheat-Pea Area 1985 Projections

The prosperous Palouse farming area of Washington State is traditionally a region where farmers rotate wheat and pea crops.

But the area may become better known as a wheat-barley region by 1980 or 1985, judging by a recent ERS projection based on a statistical linear time series model.

The pea crop yield is expected to fall off relatively, while yields for barley are expected to increase. By 1980 barley may earn the farmer more than peas.

One gross income estimate for 1980 has barley earning $77 per acre and peas $76. By 1985—if present production, marketing, and price trends continue—the gross return for barley would be $84 per acre while peas would be around $77.

What's likely to be one of the most unforecastable factors in the next 15 years is the effect of crop research. Yields of both wheat and barley have been increased sharply in the past 18 years. And crop improvement programs for dry field peas have in general been lagging behind those for barley. *(2)*

Mechanical Gleaners Bale More Profits for U.S. Cotton Farmers

Whether it happens before or during harvest, cotton that gets left on the ground isn't making any money for farmers.

Preharvest losses can occur when mature bolls are allowed to remain in the field too long before they are harvested.

When mechanical cottonpickers are used for harvesting, under the most ideal conditions they normally leave from 5 to 8 percent of the crop on the stalk and ground beneath.

If the cotton is very mature and the plant is brittle, stalks can shatter and the machines' efforts will consequently be even less efficient.

Ground loss of cotton usually ranges from 5 to 15 percent of the total crop.

In the early years of the mechanical cottonpicker, farmers looked on the waste associated with it as unavoidable. A few attempted to salvage part of their loss by hand gleaning, but this was slow and expensive.

As yields increased and the machines became more popular, interest grew in developing a mechanical gleaner to salvage the ground loss.

Mechanical cotton gleaners were tried first in the West where high yields and good weather make conditions favorable for ground retrieving. Successes there prompted farmers further east to try out the machines. The first known use of mechanical gleaners in the Midsouth was in 1961 when about 15 machines gleaned about 350 bales of cotton from the ground.

Since then the number of machines and extent of use has grown considerably.

Slightly more than 1 percent of the total 1964 cotton crop was mechanically gleaned, and the salvaged portion contributed over $22 million to cotton producers.

Although less than 0.5 percent of the Mississippi Delta cotton crop was mechanically gleaned in 1964, some 150 gleaners—both owned and custom rented—were in operation in the area. They gathered from 4,500 to 6,000 bales worth an estimated $500,000 to $750,000.

The amount and quality of cotton retrieved by the machines depended in part on preharvest and harvest conditions as well as on the type of mechanical gleaner used.

As far as the economics of mechanical gleaning affect the individual cotton producer, it appears that he'd be wiser to depend on custom renting rather than purchase his own machine. Weather hazards make days available for gleaning uncertain, and there's the possibility that the gleaned cotton will bring lower prices. So it might be many years before a mechanical gleaner really paid for itself in returns to the producer.

On the other hand, custom operators usually receive one-half of the returns from the sale of gleaned cotton as their fee.

So it actually doesn't cost the producer any extra to have his fields custom gleaned, and whatever he takes in from the sale adds to his net farm income.

The necessity for mechanical gleaning might be eliminated one day by better varieties of cotton for mechanical picking—and better mechanical cottonpickers. Till then, the problem of how to deal with field loss and gleaning will continue to be a problem. *(3)*

Farm Fallout

Preliminary estimates for 1970 indicate only 2.9 million farms will be in operation—a 3-percent decline from the 1969 total and 27 percent fewer than in 1960.

But while the past decade showed a sharp drop in number of farms, only a 5-percent decline was estimated for land in farms. Acreage in 1960 was roughly 1.2 billion; this year it's estimated at around 1.1 billion.

From 1960 to 1970, there's been a 31-percent increase in the average size of farms. Acreage has increased from an average 297 per farm in 1960 to an estimated 387 this year.

Continued disappearance of small marginal farms—and merging of farms into larger units with more efficient operations—contribute most to the change in farm numbers.

Main reasons for the decline in farm acreage are urbanization and highway construction. These are partially offset by the bringing of new lands into production. *(4)*

The Plains Drain

At the rate farmers in the Texas High Plains are now using underground water supplies, by 2015 they'll have to turn back the time-clock and revert to use of rainfall.

A dryland farming area it once was, to dryland farming it will return if present trends in water use continue.

That appears to be the verdict of a study that looks ahead to the year 2015 and is concerned with water problems in the High Plains area of Texas. The Economic Research Service sponsored the study in conjunction with Texas A&M University.

The Texas High Plains area has been experiencing an upsurge in farm production, thanks to the use of irrigation water from underground sources.

But High Plains water levels are already falling fast wherever intensive irrigation has been drawing on the underground water supplies. And water depletion trends over the past 30 years indicate that in less than 50 years there will be few areas where it will pay to irrigate.

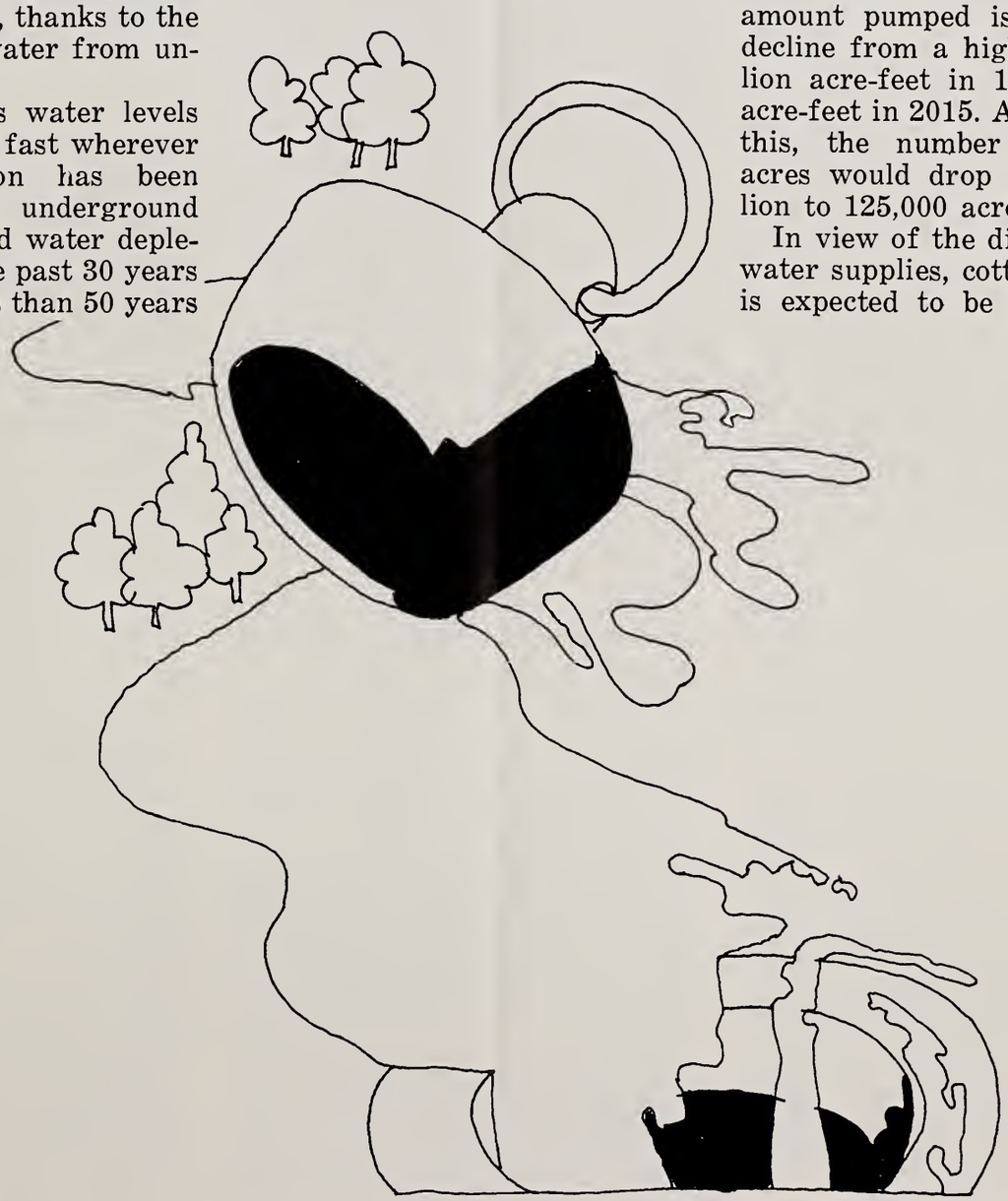
The High Plains area covered in the recent study includes almost 7 million acres of land extending over all or part of about 21 counties in the Lower Texas Panhandle.

Before irrigation, farmers rarely attempted to grow cotton and grain sorghum crops except in the extreme eastern and southwestern parts of the area. Dryland winter wheat was the principal crop.

With irrigation development, however, cotton and grain sorghum became major crops in the High Plains.

As water is used on these and other High Plains crops, the amount pumped is projected to decline from a high of 4.13 million acre-feet in 1966 to 95,000 acre-feet in 2015. And along with this, the number of irrigated acres would drop from 3.5 million to 125,000 acres.

In view of the dim outlook for water supplies, cotton production is expected to be down from a



million bales in 1966 to 355,000 bales in 2015. And grain sorghum would almost disappear with a projected fall off of 91 percent.

Approximately half of this projected decline in production is expected to occur by 1985.

In fact, at present many farmers are beginning to feel the pinch of rising production costs due to falling water levels.

Could High Plains farmers make more efficient use of the water that's remaining? Probably yes. But many factors stand in the way.

Chief among them is the farmer's immediate need for highest returns.

Because of support prices, cotton is the best crop for him to grow at present and usually brings him the most returns.

It also is the crop that makes the most profitable use of the remaining High Plains water.

But because of acreage allotments on cotton, the farmer is also likely to grow lots of grain sorghum, the area's second best crop.

Grain sorghum, however, makes less efficient use of the water.

In the long run, as water levels drop, the High Plains farmer will have to cut back on grain sorghum in order to save water for cotton.

Finally, he will have to replace both of these crops with dryland wheat. But unless he greatly expands his scale of operation, total value of production will drop substantially.

Since many High Plains operations were originally dryland farms, there is a strong likelihood that the area may eventually revert to its former status when use of remaining water supplies becomes uneconomical.

And dryland wheat production is projected to rise about 22 percent. But—following the trend evident in many rural areas in the country—there will be fewer farmers producing it. *(5)*

As Trends in Northeast Farmland Go, So Go Trends in Other Areas

The impact of farmland and farm production on the economy of the Northeast Region is small.

After all, farmland represents only 32 percent of the land area of the region which contains some of the Nation's largest cities.

Yet a lot of what's currently happening to farmland in the Northeast parallels trends in other areas.

The 12-State Northeast Region includes West Virginia and all Atlantic Coast States to the North, plus Vermont. It covers an area of about 128 million acres, of which around 16 percent is cropland, 6 percent pasture, 60 percent forest, and the remaining 18 percent roads, airports, urban areas, housing lots, swamps, and wildlife preserves.

(By contrast, in the five Corn Belt States about 57 percent of the land area is cropland, 12 percent pasture, 19 percent forest and 12 percent other lands.)

Total land area devoted to agriculture in the Northeast averages about 32 percent of the total land area, or around 39 million acres. The proportion ranges from 13 percent in Maine to about 52 percent in Delaware.

Since 1964, almost 2 million acres of Northeast land have dropped out of agriculture.

In general, the better and often choice, Northeast farmland has remained in agriculture while the marginal land has shifted to nonfarm use—though there are, of course, many exceptions.

Northeastern farm real estate was valued at $10.6 billion on March 1, 1969. Of this, $3.8 billion, or 36 percent, represented the value of service buildings and dwellings.

The average value per acre ranged from $130 in Maine to $916 in New Jersey.

Over the last decade, land value increases averaged about 86 percent; 9 percent since March 1968 alone.

Strongest influences on Northeast farmland values have been nonfarm demand for farm real estate, changes in farming incomes, and the cost of real estate credit.

But farm real estate is generally less affected by the current tight money market than the urban real estate market. The reason: a high percentage of those who sell farms finance their sales themselves.

A group of Northeast farm real estate brokers surveyed in March 1969 indicated they felt land prices in the region would continue to increase, but probably at a slower rate. *(6)*

Future of Rural America Depends On Adequate Services to Public

In the country, a boy with a pony is a boy with a pony.

In the city, he's a boy with a problem. . . .

For the Health Department.

For the Sanitation Department.

And—if the pony runs away or disturbs the neighbors—for the Fire and Police Departments.

Such differences in the needs of people for public services exist all over the country.

Educational services, for example, are important to the young while older people look more to welfare services.

Fire protection is most important to property owners; health and hospital service to the very young and the very old.

Partly because of the different needs of people in rural areas, but also because of sparse population and lack of funds, public services in the hinterlands are often inferior to those in cities.

Health services as evidenced by the chronic disability rate in the country are inferior to those in the city. The disability rate is

twice as high among rural residents as among urbanites.

Medical science has discovered how to cure many formerly fatal diseases yet the means of delivering this technology to rural residents is still not available in many areas.

The Labor Department reported that the median years of schooling completed by male farmers and farm managers in 1966 was 8.7 years, compared with 12.2 years for all occupational groups.

By and large, rural schools today are—as are all schools—much improved over what they were 50 years ago. But the amount a rural child must learn has increased greatly and the gap between the quality of rural and urban schools may have actually widened. *(7)*

Farm Income, Farmer Income Not the Same: Vive la Difference

What a person earns from his farm may or may not be his total income.

And for many of today's farm operators, especially those with low farm incomes, the extra money they earn off the farm helps to keep them solvent.

About 3 million individuals reported farm income for Federal income tax purposes in 1966, including landlords and others not living on farms.

More than three-quarters of these reported that they netted less than $3,000 from farming in 1966.

Many reporting farm income also reported off-farm earnings; total income from combined farm and off-farm sources averaged $6,460.

Individuals reported $13.8 billion in off-farm earnings in 1966. And on top of that, they reported about $1.7 billion in combined farm and nonfarm capital gains.

Individuals whose incomes appeared to be small when only farm profits and losses were considered often had the largest combined farm and off-farm incomes.

Wages and salaries made up two-thirds of the off-farm income. Such income was reported on more than half the farm tax returns.

About a tenth of those with farm income in 1966 also reported about $938 million from dividends.

But 5 percent of all individuals reporting farm income accounted for about nine-tenths of the dividends. These were individuals with dividends who had average total incomes of more than $10,000 from all sources.

Over 10 percent of the people with farm incomes also had nonfarm businesses that provided them some incomes.

Judging by these highlights from tax return statistics, without carefully weighing both farm and off-farm income, it is often difficult to identify the individual who is truly poor.

Not all people with low farm incomes today are poor. Most receive some off-farm income as well.

In fact, farming is the main source of income for fewer than half of those reporting farm income on their tax returns. *(8)*

To Drain It, Dam It, or Drink It Ripples Pool of Water Priorities

Water can as easily flow into a city's reservoir as into a farmer's field to irrigate crops.

But, because of water's increasing scarcity, maintaining a flow in both directions could mean water shortages in both the city and farmers' fields.

Which use of water takes precedence?

One State (North Dakota) has an answer that takes the form of a priorities list. Several Western States have such lists although the priorities may differ.

The North Dakota statutes governing the appropriation of water under permit from the State Water Conservation Commission specify that when there is a conflict in usage of water, the following—in order of preference—shall be given precedence:

1. Domestic use including drinking water and other household and small garden uses, whether supplied by a city or individually supplied.
2. Commercial livestock use.
3. Irrigation and industrial use.
4. Fish, wildlife, and other conservation or recreational uses.

Thus, in cases of usage conflicts, domestic use could preempt all other uses.

Another way of handling these conflicts is to give equal consideration to all uses and let the "best" use, or uses, determine how the water will be used.

In this case the "best" use is defined as the one that will satisfy the most urgent needs of the people in a given area.

The best use for water in one area, for example, may be solely to maintain a wilderness ecology. In another area, the best use might be irrigation.

Once the primary purpose for the water is selected, as many secondary purposes as are compatible with the primary one should be considered as well.

But who decides which use is primary and which secondary is another problem.

In some States there is a single large agency created to handle all water policies and programs and this agency has the last word on which uses take precedence.

In others, one State agency may represent one or more views, another agency may represent still other views, and so on.

Conflicts are resolved by such means as the strength of each agency's arguments, its relative capabilities, and its constituencies. *(9)*

The Green in Green Beans

Southern entrepreneurs may be discouraged by the many problems involved in starting a green bean processing plant. Opportunities do exist for firms with know-how.

Some green beans end up in cans. Some hit the market fresh.

Most green beans grown in the South take the second route—contrary to the national trend toward processed beans. So far there has been very little investment in large canning plants for beans in the South. Yet the average price paid for beans to be processed has been higher in southern States than in Oregon, New York, and Wisconsin—the major producers for the processing market.

The high cost of processing and the relatively favorable position of southern beans in the national fresh market trade are two reasons more southern-grown string beans haven't gone into cans or jars.

The Economic Research Service and North Carolina State University recently completed a study on the feasibility of canning green beans in single-product plants in the South—particularly in North Carolina. This State is one of the leading producers for the fresh market, but growers often sell their beans late in the season at much lower prices than Florida and most other States because their late spring harvest period is at that time.

The study was undertaken in an effort to pinpoint conditions under which new modern processing plants in the South could compete with modern plants in well established processing areas.

An economic-engineering approach was used to derive cost estimates for selected model plants.

The study showed that processing plants ranging in capacity from 100 to 1,500 cases per hour could operate profitably if the length of season extended beyond 1,000 hours, if the raw product price was not above $100 per ton, and if the finished product price was $3.50 or more per case.

Larger plants, with output rates of 800, 1,200, and 1,500 cases per hour, could make more than a 10-percent return during much shorter seasons, even if raw product prices were higher and finished product prices lower.

The investment value of all plants declined from the 1st to the 10th year as the value of buildings and equipment depreciated.

However, the amount of the decline in investment value indicated by the study was perhaps a bit high since it did not account for the business value of contracts with suppliers of raw products, and buyers of finished products, and the value of an established trademark.

Many problems have to be resolved before any investment in green bean processing plants is actually made.

One problem might be the impact on the national market. For example, the output would represent more than 4 percent of the 1968/69 national green bean pack if the largest model plant (1,500 cases per hour) had an annual output of 2.25 million cases of 24/303 can-equivalents when operated at capacity for 1,500 hours per season.

The effects of this processed

volume on the market might depress finished product prices. Moreover, carryover of canned beans—increasing since 1965—would be pushed even higher than the 11.4 million cases carried over in 1967/68.

Also, a new plant producing 2.25 million cases of canned beans per year would obviously require a larger volume of beans to operate for 1,500 hours each season —about 18,000 tons, or the harvest from about 7,200 acres yielding 2.5 tons per acre.

Texas and Tennessee were the only southern States that produced enough beans for processing in 1968 to supply that large a plant. They produced 20,300 tons and 18,900 tons for processing, respectively, in 1968. Altogether, southern States produced only about 81,300 tons for processing in 1968—13 percent of U.S. production.

If a large plant was constructed in the South, demand for beans would be likely to rise and thus raise the price of fresh beans by competing for total supplies. At the same time, the price of beans for processing would rise —at least in the short run.

These "drawing board" deterrents may discourage southern entrepreneurs from starting a completely new processing company. Yet opportunities probably exist for companies with well established national and international markets, experience in developing raw supply sources, and a ready source of investment and operating capital. *(10)*

Conglomerates of the Past Decade Have an Up-In-The-Air Future

"A finger in every pie" might define the conglomerate approach to business. More technically, conglomerates are characterized by the joining together of disparate economic activities.

Conventional food firms tend to be product oriented. They are mainly concerned with the price of raw materials, processing, packaging, and transporting procedures, storage, and advertising. Their specialty is their production and marketing expertise as applied to a particular food item or group of related food products.

Conglomerates, on the other hand, bring an information approach to management, applicable to all industries. If they have a specialty or "product," it is information. They tend to emphasize law, taxation, accounting, finance, risk acceptance, and profit, rather than a product.

The emergence of conglomerates in the 1960's wouldn't have been possible without many processing and marketing advances of earlier decades—horizontal and vertical coordination skills; computers; refining of disciplines like accounting and finance; and institutional investors with the funds to enable massive aggregations of capital resources.

The conglomerate approach has already had some effect on the food processing industry. And reverberations from the impact will probably continue to be felt to some degree in the 1970's.

Some conglomerates have proved profitable because their size, diversification, and overview have on occasion tended to serve as a hedge against the uncertainties produced by external forces such as technological change, government contracts, fluctuating raw material prices, or the public's acceptance or rejection of a new product.

Some of the effects of conglomerate mergers on food distribution in the seventies may be:

—Recognition that there are management "economies of scale" in law, taxation, accounting, and the behavioral sciences, as well as in promotion and advertising.

—An increase in the introduction of new food products—or substitutes for old ones—since conglomerates can afford to take the risks, and tend to be unbound by traditional product orientations and restrictions.

—Somewhat less reliance on open competitive markets for raw agricultural products, as food firm managements sidestep supply problems by subscribing to contracts and integration.

—Rising investment in productive agricultural land by conglomerate landowners. *(11)*

Golf Links Are Among the "Green Pastures" Upping Fertilizer Sales

Golf courses are green turf from which fertilizer profits can grow.

And in the Northeast (as in many other parts of the country) the fertilizer industry is looking for every bit of nonfarm turf it can find, since the amount of cropland harvested each year is dropping rapidly.

In the 10 years from 1949 to 1958 an average of nearly 18 million acres of farmland were harvested in the Northeast.

In 1969 about 13 million acres were harvested—a 28-percent drop, compared with the overall U.S. decline of 14 percent.

Paralleling this trend, the quantity of fertilizer used for farm purposes in the 12 Northeast States is definitely on the wane.

Luckily there are "greener pastures" for fertilizer sales:

A golf course, for example. And there are more than 2,400 of them in the Northeast—ranging from championship courses at seaside resort areas to par-3 small community "nines" on former pastureland.

Altogether, they use an average of more than 2 tons of fertilizer per hole annually. This is equivalent to about 527 pounds per acre, which is more than most farmers average.

A good deal of fertilizer is also used on athletic fields (25,000 tons), family lawns and gardens (320,000 tons), industrial plants, and campus lawns (20,000 tons).

Nonfarm lawns and gardens account for the greatest amount—almost half of "off the farm" sales, in fact.

Industrial plants are the second largest nonfarm users in the Northeast, as many of them have decentralized and moved to sites with expansive grounds to maintain.

These nonfarm uses have proved to be such "green pastures" for the fertilizer industry that there was only a slight decrease in the Northeast's total use of plant nutrients in 1969 over 1968, despite the sizable drop in cropland and relatively stable rate of fertilizer use on crops.

The rapidly growing nonfarm demand for fertilizer during the past decade is apparently offsetting declining farm demand.

In 1959 nonfarm use of nitrogent, P_2O_5 and K_2O in the Northeast was estimated at about 10 percent of total use for the region. By 1964 the nonfarm portion was up to 21 percent; and in 1965/66 it reached about one-fourth of total usage.

Last year, nonfarm purposes may have accounted for nearly 30 percent of total fertilizer use in the Northeast, and the uptrend is likely to continue.

In at least two of the Northeast States—Massachusetts and New Jersey—it is probable that less than half of all fertilizer used goes on farm fields.

The fertilizer industry is now likely to find its best Northeast new-business prospects in the areas of pasture and forest fertilization. This shift will not come about quickly, however. Less than 10 percent of Northeast pastures are being fertilized today, and there will have to be considerable incentive to increase this use to any significant proportion.

The general uptrend in U.S. use of bulk dry and liquid fertilizers during recent years is apt to continue and will probably be reflected to some extent in Northeast sales.

These fertilizers not only can reduce costs, but also allow for inclusion of micronutrients and pesticides.

Ten years ago there was one bulk blend plant reported in the Northeast. Today there are probably 175 or more. And the number of liquid mix plants has gone up from 17 in 1959 to over 35 in 1969. *(12)*

Some Nebraska Grain Firms Find Varying Product Line Pays Off

Trade statistics indicate that grain firms—like many other types of agricultural business—are becoming more highly diversified and changing the pattern of their retail activities.

But evidence is less clear when it comes to the overall influence diversification will have on the economic performance and the future structure of the industry.

A point frequently made in favor of diversification is the need to stabilize earnings and sales.

Grain assembly is a highly seasonal operation, with peak activity at harvesttime. Off-season, nongrain activities can be complementary by leveling out the year-round employment of labor, management, as well as the use of facilities.

Between 1939 and 1963, fertilizer and agricultural chemicals gained markedly as a secondary activity of grain establishments. Sales of livestock products, coal, fruit and vegetables declined in importance or were discontinued entirely.

There was also a decline in receipts from labor, services, and rentals. This may have been partly due to fluctuations in storage and handling of government-owned grain, but a more important factor was probably the increased use of custom services for merchandizing fertilizer, drying grain, and shelling corn.

Nevertheless, a study of 168 local grain cooperatives in Nebraska indicates that many did diversify their operations between 1958 and 1965. And the larger cooperatives—many with sales of more than $600,000—diversified the most.

Grain constituted 77.13 percent of sales of all the Nebraska grain co-ops in 1958, but only 71.13 percent in 1965.

Feed and fertilizer showed the most marked increase in percentage of total sales. Seed sales increased slightly, while petroleum, machinery and equipment, building materials, and other miscellaneous supplies each declined in relative importance.

The general trend toward diversification in Nebraska is attributed in large part to firm growth. (The number of firms with sales of $1,000,000 or more doubled between 1958 and 1965.)

Another factor has been an increasing demand for farm inputs, especially fertilizer and commercially prepared feeds. And the decline in Commodity Credit Corporation (CCC) storage has probably also prompted many firms to increase their farm supply activities.

In addition, since expansion of the grain business as such is limited by market demand both at home and abroad—and by the concentration of competitors—many firms had to diversify into new commodity lines in order to grow.

The study of Nebraska grain companies showed that the total "diversification index" rose between 1958 and 1965 for all except one size category.

The decline was in the group that had annual sales worth $400,000 to $599,999. Although these firms had been the most highly diversified in 1958, by 1965 they had become the least diversified group.

The most highly diversified companies in 1965 were in the $1,000,000 to $2,999,999 size classification by sales volume. *(13)*

Food Aid For Our Own

What would it take to close the food and nutrition gap that exists in this country? ERS economists explore several ways of assuring every American an adequate diet.

That hunger can have the face of a child in Chicago or a retired farmer in Maine shocks many Americans. How can there be hunger in this age of affluence, in this land of plenty? And what can be done to assure every American a nutritionally adequate diet?

The Department of Agriculture has been grappling with the problem of hunger and malnutrition for years. Its Commodity Distribution Program, which distributes food free to schools, needy families, and charitable institutions, was begun in the 1930's. And USDA initiated a pilot food stamp program in 1961.

Last fiscal year, an average of 2.9 million people received $603 million worth of food stamps. For these, the recipients paid $374 million and the government provided $229 million.

In addition, 3.6 million Americans received 1.1 billion pounds of food under the Commodity Distribution Program.

Aside from these two major programs for needy families, USDA also sponsors others. One provides supplemental foods for needy mothers. Another donates food for more than 1.2 million persons living in institutions. In addition, both food and money are supplied for lunches and breakfasts in schools.

The National School Lunch Program, in existence for 23 years, served nearly 3.4 billion noon meals to 20 million children in fiscal 1969. About 15 percent of these meals were provided free or at reduced cost to children of

needy families.

A school breakfast program was instituted in more than 3,000 schools in 1968. Nearly three-fourths of the breakfasts were provided free of charge.

But while these cost figures seem substantial, USDA's food programs actually amount to only a small part of the total food market in our country.

Food spending by all consumers in the United States totaled around $104 billion in 1969. Thus, the $603 million in food stamps was only six-tenths of 1 percent of total food expenditures.

And since over three-fifths of the value of food stamps represented contributions by recipients, the net addition to food spending represented by "bonus" stamps could not have exceeded two-tenths of 1 percent of total U.S. food spending last year.

The food donated directly to needy families, schools, and institutions amounted to around 1 percent of all food consumed. And the total value of food and monetary assistance given to schools averaged out to 15 cents per lunch.

Assistance under all of USDA's food programs therefore added up to perhaps 1½ percent of the total food market in the United States.

Recently a number of other methods of closing the food and nutrition gap have been proposed. One of these, income supplements, would allow recipients free choice to purchase food, clothing, housing, an automobile, or whatever they need or desire.

But income supplements would be an expensive means of improving the quality of needy families' diets for it takes a relatively large increase in income to generate only a small increase in food expenditures.

Analysis of data from the 1965 survey of household food consumption indicates that a 10-percent increase in the income of families earning less than $3,000 annually would be expected to boost their food spending by only 1 or 2 percent.

And there would be an even smaller rise in the quantity of food purchased. Part of increased food expenditures usually goes for higher quality or perhaps only more expensive foods rather than for an increase in either quantity of food or essential nutrients.

ERS researchers have estimated that it would take a $20 billion income supplement to raise food consumption of families with incomes below $3,000 up to that of all families with incomes over $3,000.

The nutritional quality of U.S. diets is only loosely associated with family incomes.

To be sure, the poorer a family is, the poorer its diet is likely to be. At the time of the 1965 survey, slightly more than one-third of the households with incomes under $3,000 had diets that were significantly short of recommended levels for at least one of seven important nutrients.

But poor diets are by no means a monopoly of the poor. In fact, about a fifth of the households with incomes between $5,000 and $7,000 in 1965 also failed to pass the nutrient test, as did a tenth of the families with incomes over $10,000.

Income supplements obviously would help alleviate physical hunger and reduce the hardships of poverty. But income supplements alone would not close the Nation's nutrition gap. That will take an educational effort so that every U.S. citizen, rich or poor, knows what constitutes an adequate diet and is enticed to obtain it.

As far as America's agriculture is concerned, there is plenty of food available or potentially available to solve the food problem.

If all the families with incomes of less than $3,000 ate like the rest of the population, their food expenditures would increase by an estimated 15 percent.

Consumption of some foods would increase and others decrease. As a Nation, we would eat less cereal and grain products and use fewer dry beans and eggs. But consumption would rise markedly for meat and other highly desired foods.

An increase of 15 percent in food spending by low income families would increase the total quantity of food commodities needed by the entire U.S. public by only 2 to 3 percent.

That's considerably less than the increase of 10 to 12 percent in food supplies which farmers could potentially provide under reasonable price incentives and free market operation. Of course, it might take a few years for farmers to gear up to this level of output.

The point is that farmers could readily provide the amount of food necessary to solve the poverty related food problem. The major obstacle is that of distribution of food to the people who need it and payment to suppliers in a manner that is equitable to consumers. *(14)*

Diets of Women, Children Short Of Iron Despite an Ample Supply

Measured by the food available for consumption per person in the United States, the quality and variety of our diet make it one of the best in the world.

Yet many American's aren't eating nutritionally adequate diets, either because they can't afford to, or don't know how to, or just don't care to.

In a USDA survey of the food intake of individuals in 1965, for example, it was revealed that infants and children under age 3 were averaging only half their recommended daily allowance of iron.

Diets of girls and women between the ages of 9 and 55 were woefully short of this nutrient, too. In fact, levels of iron were 30 percent or more below the recom-

mended allowance for every age in this group.

But the amount of iron in the U.S. food supply is estimated to be large enough to meet individual needs.

Indeed, the daily amount of iron in 1969 averaged out to 17 milligrams per capita. That was close to a record high and more than enough to provide every American with recommended amounts of iron if foods were distributed according to nutritional needs.

Only in the mid-1940's were per capita levels of iron any higher. These were peak years for pounds of food consumed and consequently for many nutrients in the food supply.

The lowest level of iron use occurred in the mid-1930's—years when incomes were low, enrichment of cereal products had not become common, and the consumption of meat (a good source of iron) was down.

Almost 60 percent of the iron in our food supply is provided by two food groups: meat, poultry, and fish; and flour and cereal products.

The first group is the largest contributor of iron today, primarily because of the hefty increase in our beef appetites. Beef alone provided 15 percent of total iron in 1969. Pork (not as good a source of iron) added another 7 percent.

Edible offals, which include liver, are some of the best iron sources. Many of these products are used in luncheon meats. And though consumption of edible offals has never been large—usually around 10 or 11 pounds per capita per year—these foods have always made a good contribution to our iron supply. In 1969 they provided 3 percent of the total.

Poultry is not as good a source of iron as the red meat or edible offals. But because we eat so much of it, poultry also furnishes about 3 percent of the iron.

Flour and cereal products are the other major contributors of iron to our diets—thanks to the enrichment program begun in the early 1940's.

Adding iron to bread and flour products has more than made up for the decline in iron from decreased grain use.

With enrichment, in fact, flour and cereal products became the No. 1 contributor of iron and remained so until the early 1960's. Today, enrichment of these foods adds about one-fifth more iron to our national food supply than it would otherwise have. *(15)*

Family Food Funds

U.S. consumers spent an estimated $104 billion on food in 1969—or roughly $512 per person.

But if you're like many Americans you don't think of your food bill in per person terms, but in a per family context.

As of March 1969 there were 61,805,000 family units in the United States, according to Bureau of the Census reports. On this basis, the average family unit (including single person families) is spending $1,683 for food.

Of the 61,805,000 family units, 11,389,000 were single individuals and 50,416,000 were 2-or-more person families.

Information from the 1960-61 Survey of Consumer Expenditures showed that a person living alone as a single family unit spends, on the average, a little more than half again as much for food as do individuals who live in 2-or-more person family units.

Assuming that spending for food by single individuals was at the rate of $812 each in 1969, the average 2-or-more person family spent about $1,802—or $495 per person, since the average size unit was 3.64 persons.

(This figure is reached after deducting the estimated spending of $3.9 billion by the 7.6 million persons, including military, who were not in family units.)

Family spending (excluding single person households) averaged about $35 a week, including spending for food away from home. *(16)*

Farm Families Still Raise Their Own Meat, But Buy Even More

Not very many years ago, a veal roast or leg of lamb served up for family dinner might have brought a tear to the eye of a youngster. For it wasn't too long ago when many families raised their own meat, and children were personally acquainted with their main courses.

Nowadays, store-bought meats spare our youngsters such pain. In cities, consumers rely almost exclusively on purchased meats. And rural nonfarm families get less than 7 percent of the meat they eat from home slaughter or sources other than purchase.

Only on the farm is home meat production still at all significant—and even there it's far less important than it once was.

The last nationwide household food consumption survey, taken in 1965, showed that farm families raised and slaughtered about 46 percent of the red meat they ate at home. A decade earlier, home meat's proportion of total farm use had totaled 49 percent.

But farm families weren't really eating *less* home produced meat in 1965 than before. In fact, their 1965 weekly per capita homegrown helping averaged over 1.5 pounds—a tenth of a pound more than a decade earlier. It was just that farm families' overall consumption of meat, especially store-bought meat, rose so much that it lessened the importance of their home meat production.

More and better refrigeration in farm homes has played a big part in allowing farm families to indulge their appetite for meat, especially beef.

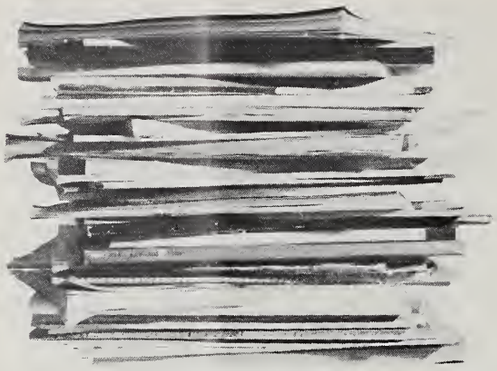
In 1965, beef made up roughly half of farm families' total red meat consumption. Always before, pork had been the No. 1 meat, because of its storability when cured. But by 1965, pork made up only a third of farm families' meat menu. *(17)*

MONTANA FARM ADJUSTMENTS AND THEIR ECONOMIC EFFECTS ON FARM INCOME 1954-1967. Walter G. Heid, Jr., Montana State University, in cooperation with the Farm Production Economics Division, Mont. Agr. Expt. Sta. Bull. 629.

A report on the land-use adjustments undergone by the state of Montana over the past 15 years. Most agricultural adjustments in the State tend to be limited to some form of specialization rather than diversion, in order to produce at minimum per unit costs.

UPPER VOLTA'S AGRICULTURAL ECONOMY IN BRIEF. Snider W. Skinner. Foreign Regional Analysis Division. ERS-For. 285.

This study gives a brief review of agricultural trends for the period 1959-1968. Despite its rather primitive farm technology the country is showing signs of economic progress. About 90 percent of Upper Volta's exports are agricultural. Foreign assistance is raising the countries economic trends.



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The publications listed here are issued by the Economic Research Service and cooperatively by the State universities and colleges. Unless otherwise noted, reports listed here and under Sources *are published by ERS. Single copies are available free from The Farm Index, OMS, U.S. Department of Agriculture, Washington, D.C. 20250. State publications (descriptions below include name of experiment station or university after title) may be obtained only by writing to the issuing agencies of the respective States.*

AGRICULTURE IN THE UNITED STATES AND THE SOVIET UNION: A STATISTICAL COMPARISON. J. A. Levine and P. I. Bryan, Foreign Regional Analysis Division. ERS-For. 286.

This statistical study compares the structure, resource allocation, and performance of agriculture in the United States and the Soviet Union. These indicators provide, at best, only general guidelines for judging agricultural performance. The Soviets have, however, narrowed the gap in some areas.

MARKET TEST OF DRY WHOLE MILK. Morris W. Sills, Marketing Economic Division. ERS-433.

This study reports on sales in a store test of USDA developed whole dry milk called Dairy Fresh. The report indicated a high consumer acceptance of the product and a potential commercial success. (See December 1969 Farm Index.)

ARTICLE SOURCES

State publications indicated by (*) may be obtained only from the experiment station or university cited. Manuscripts and special material are usually available only on request to authors.

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2. Edgar L. Michalson, FPED, Washington State University. Forecasting Crop Yields, Total Production and Gross Income for the Palouse Wheat-Pea Area 1970-1985 (manuscript).
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4. Statistical Reporting Service. Number of Farms and Land in Farms, SRS SpSy 3(1-70).
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6. Robert D. Reinsel, FPED. The Farm Real Estate Situation: Northeastern United States (presented at the Sixth Annual Northeast Regional Agricultural Outlook Workshop, Hartford, Conn., Sept 15-16, 1969).
7. Thomas F. Hady and Ronald Bird, EDD. Public Services in Rural Communities (manuscript).
8. Edward I. Reinsel, FPED. Off-Farm Income of People Involved in Farming (manuscript).
9. Dean F. Bard, and Robert E. Beck, NRED, University of North Dakota. An Institutional Overview of the North Dakota State Water Conservation Commission: Its Operation and Setting (manuscript).
10. Gene A. Mathia and James L. Pearson, MED, North Carolina Agricultural Experiment Station. An Analysis of Opportunities for Canning Green Beans in the South (manuscript).
11. Thomas T. Stout and Paul E. Nelson, MED. Implications of Conglomerate Mergers to Food Distribution in the 1970's (presented at the 10th Annual Meeting of the Food Distribution Research Society, University of Maryland, Oct. 28, 1969).
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14. Stephen J. Hiemstra, Food and Nutrition Service. Food Programs: A Special Issue in Welfare Programs (speech at Galaxy Conference of Adult Education Association, Washington, D. C., December 10, 1969).
15. Berta Friend, Agricultural Research Service. Nutritional Review, National Food Situation, NFS-130.
16. National Food Situation, NFS-130.
17. Robert J. Rizek and George R. Rockwell, Jr., ESAD. Household Consumption Patterns of Meat and Poultry in the Spring of 1965, AER-173.
18. Statistical Reporting Service. Honey Production, SRS Hny (1-70).

NOTE: Unless otherwise indicated, authors are on the staff of the Economic Research Service (ERS) with their divisions designated as follows: Economic and Statistical Analysis Division (ESAD); Economic Development Division (EDD); Farm Production Economics Division (FPED); Foreign Development and Trade Division (FDTD); Foreign Regional Analysis Division (FRAD); Marketing Economics Division (MED); and Natural Resource Economics Division (NRED).

ECONOMIC TRENDS

Item	Unit or Based Period	'57-'59	1969				1970
		Average	Year	January	November	December	January
Prices:							
Prices received by farmers	1910-14=100	242	277	263	285	286	287
Crops	1910-14=100	223	224	220	228	221	218
Livestock and products	1910-14=100	258	322	299	333	342	346
Prices paid, interest, taxes and wage rates	1910-14=100	293	373	364	378	378	383
Family living items	1910-14=100	286	351	342	356	357	360
Production items	1910-14=100	262	304	296	306	307	309
Parity ratio		83	74	72	75	76	75
Wholesale prices, all commodities	1957-59=100	—	113.0	110.7	114.7	115.1	116.0
Industrial commodities	1957-59=100	—	112.7	110.9	114.2	114.6	115.1
Farm products	1957-59=100	—	108.5	104.9	111.1	111.7	112.5
Processed foods and feeds	1957-59=100	—	119.8	116.0	121.8	122.6	125.1
Consumer price index, all items	1957-59=100	—	127.7	124.1	130.5	131.3	131.8
Food	1957-59=100	—	125.5	122.0	128.1	129.9	130.7
Farm Food Market Basket: [1]							
Retail cost	Dollars	983	1,118	—	1,194	1,214	—
Farm value	Dollars	388	435	—	489	497	—
Farm-retail spread	Dollars	595	683	—	705	717	—
Farmers' share of retail cost	Percent	39	39	—	41	41	—
Farm Income: [2]							
Volume of farm marketings	1957-59=100	—	127	132	171	152	132
Cash reecipts from farm marketings	Million Dollars	32,247	47,431	3,844	5,146	4,633	4,200
Crops	Million Dollars	13,766	18,939	1,634	2,733	2,176	1,700
Livestock and products	Million Dollars	18,481	28,492	2,210	2,413	2,457	2,500
Realized gross income [3]	Billion Dollars	—	54.6	—	—	55.1	—
Farm production expenses [3]	Billion Dollars	—	38.6	—	—	38.9	—
Realized net income [3]	Billion Dollars	—	16.0	—	—	16.2	—
Agricultural Trade:							
Agricultural exports	Million Dollars	4,105	5,936	178	657.8	590.8	—
Agricultural imports	Million Dollars	3,977	4,958	209	183.9	481.8	—
Land Values:							
Average value per acre	1957-59=100	—	[5] 170	179	179	179	[6] 183
Total value of farm real estate	Billion Dollars	—	[5] 193.7	202.6	202.6	202.6	[6] 207.3
Gross National Product: [3]	Billion Dollars	457.3	932.1	—	—	952.2	—
Consumption	Billion Dollars	294.2	576.0	—	—	589.5	—
Investment	Billion Dollars	68.0	139.4	—	—	141.8	—
Government expenditures	Billion Dollars	92.4	214.6	—	—	218.3	—
Net exports	Billion Dollars	2.7	2.1	—	—	2.7	—
Income and Spending: [4]							
Personal income, annual rate	Billion Dollars	365.3	747.2	718.7	767.6	770.6	773.0
Total retail sales, monthly rate	Million Dollars	17,098	29,301	28,955	29,471	29,423	29,133
Retail sales of food groups, monthly rate	Million Dollars	4,160	6,322	6,281	6,429	6,436	—
Employment and Wages: [4]							
Total civilian employment	Millions	63.9	77.9	77.2	78.5	78.8	79.0
Agricultural	Millions	5.7	3.6	3.8	3.4	3.5	3.4
Rate of unemployment	Percent	5.8	3.5	3.3	3.4	3.4	3.9
Workweek in manufacturing	Hours	39.8	40.6	40.6	40.5	40.6	40.2
Hourly earnings in manufacturing, unadjusted	Dollars	2.12	3.19	3.12	3.26	3.29	3.29
Industrial Production: [4]	1957-59=100	—	173	169	171	171	170
Manufacturers' Shipments and Inventories: [4]							
Total shipments, monthly rate	Million Dollars	28,745	54,661	52,801	55,988	54,870	—
Total inventories, book value end of month	Million Dollars	51,549	95,933	88,905	95,416	95,933	—
Total new orders, monthly rate	Million Dollars	28,365	54,819	53,119	55,948	54,611	—

[1] Average annual quantities of farm food products purchased by urban wage-earner and clerical-worker households (including those of single workers living alone) in 1959-61—estimated monthly. [2] Annual and quarterly data are on 50-State basis. [3] Annual rates seasonally adjusted fourth quarter. [4] Seasonally adjusted. [5] As of November 1, 1968. [6] As of March 1, 1970.

Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Advance Retail Sales Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale Price Index).

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Waxing Strong

Bees are somewhat lax in minding their own beeswax, judging from human success in extracting it from the hive.

And U.S. beekeepers lifted a hefty 5,460,000 pounds of beeswax from our national hives in 1969—38 percent more than they did the year before.

Beeswax is what honeycombs are made of. It has many uses in human lives too.

Take the lady in the 1920's movie with the "bee-stung" lips . . . undoubtedly beeswax went into her lipstick. Today, there's no doubt about it. Almost half the beeswax we use goes into cosmetics, especially cold creams and lipsticks. And about a third winds up in church candles.

A big part of the balance is sold back to beekeepers for use as the foundation for honeycombs.

Beeswax also frequently shows up in sewing thread, in dental mouth impressions, in ointments and cerates.

Last year's U.S. beeswax "crop" sold for an average of 61.1 cents per pound, compared with 58.8 cents in 1967.

Despite the upsurge in our own beeswax production, we import a good deal too. Between 1961 and 1966, for example, about half the beeswax used in the United States came from bee colonies abroad. Ethiopia, Angola, Chile, Mexico, and Brazil are our major sources.

Most of the beeswax we import is in unbleached (yellow) form. Bleached beeswax is white, and looks more refined—especially for candles, like at Easter. *(18)*

THE FARM INDEX

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Numbers in parentheses at end of stories refer to sources listed at end of issue.

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